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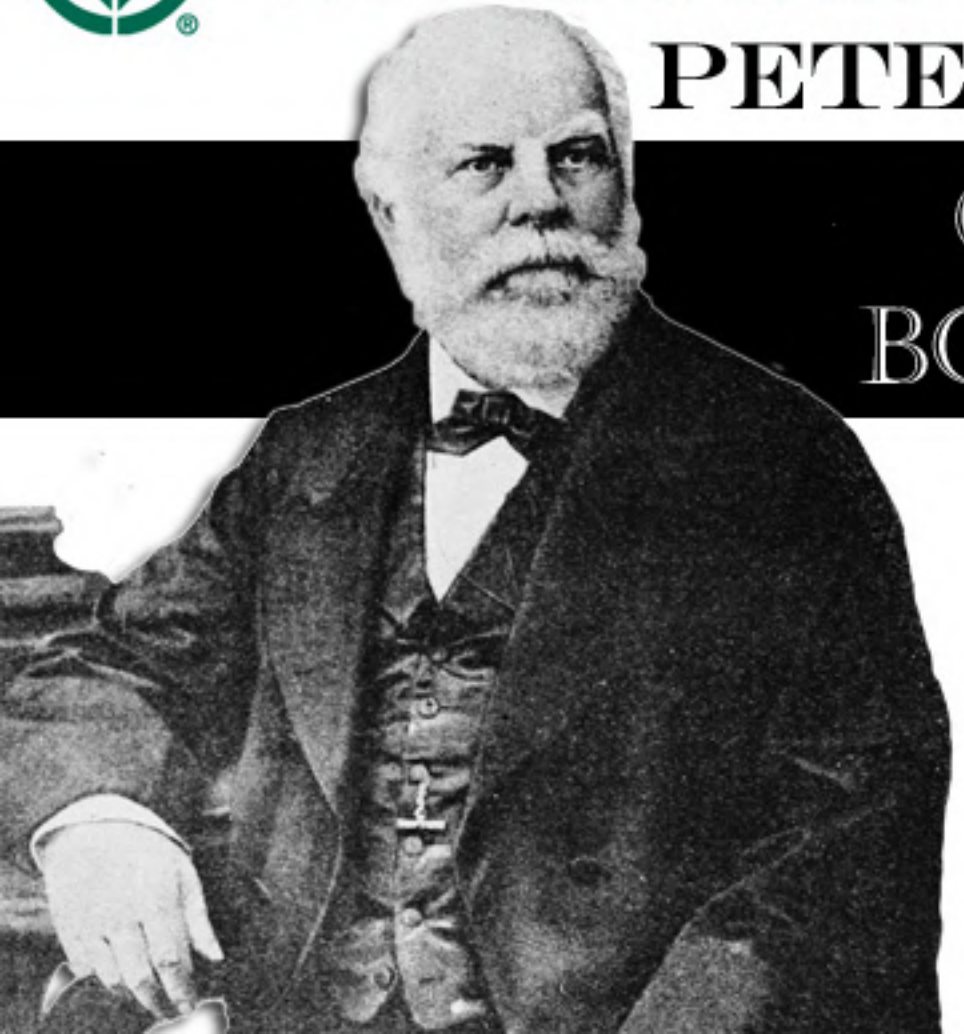
George Engelmann Botanical Notebooks



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1893-6

Pollen sizes.

3201

WAR DEPARTMENT,

Office of Explorations and Surveys,

Washington, D. C., June 15th 1859

Sir:

Vol. Eleven of Reports upon Explorations and Surveys for a Railroad Route from the Mississippi River to the Pacific Ocean is transmitted to you to-day by mail from this office.

You are requested to acknowledge its receipt under cover to the Honorable the Secretary of War, Washington, D. C.

Very respectfully,

Your obedient servant,

A. A. HUMPHREYS,

Captain Topographical Engineers, in charge.

Dr G Englemann

St Louis

Mo

MISSOURI BOTANICAL GARDEN
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Pollen

Cer variabilis (Jobel Gord)		14/412	0.034
		15/412	0.036
Ech. Ottonis		16/412	0.039
		15/412	0.036
		17/412	0.041
Ech. Williamsii		12/412	0.029
		13/412	0.031
one unusually large		15/412	0.035
Ech Schlosseri		16/412	0.039
Echps multiplex	granular	19/412	0.046
		20/412	0.048
Echps. Jussieui	granular	20/412	0.048
		21/412	0.051
Melocactus communis Paris (dried flower)		12/412	0.029

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1	div. 6. 312 =	0.002	23	=	0.056
2		0.005	24		0.058
3	———	0.007	25	———	0.061
4	9	0.010	26	———	0.063
5	12	0.012	27	0.065	0.066
6	14	0.015	28		0.068
7	———	0.017	29		0.070
8	———	0.019	30		0.073
9	———	0.022			
10	———	0.024			
11	———	0.026			
12	———	0.029			
13	———	0.031			
14	———	0.034			
15	———	0.036			
16	———	0.039			
17	———	0.041			
18		0.044			
19	———	0.046			46
20	———	0.048			
21	———	0.051			
22		0.053			

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APOTHECARY & PHARMACEUTIST,

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

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Pollen

Opunt. Missouri.	25/412	0.060	
	26/412	0.063	
	(15/270	0.055)	
Op. arborescens (dried plant)	19/412	0.046	
	21/412	0.051	
Peireskia grandifolia dried flow.	14/412	0.034	
	15/412	0.036	
Cereus nycticalus	18/412	0.044	
	19/412	0.046	
Opuntia monacantha	18/270	0.066	
	14/270	0.052	
	24/412	0.058	
Op. Curassavica (Down)	14/270	0,052	

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Pollen

Mam. polythele	globose, smooth	8/412	= 0.019
		9/412	= 0.022
		10/412	= 0.024
		11/412	0.026
Echinorot. setispis	globose smooth	10/270	0.037
		11/270	0.041
		16.5/412	0.040
Ech. Scopa	" " "	11/412	0.026
		13/412	0.030
		12.5/412	0.031
Cer. Berlandieri	" "	9/270	0.033
		14/412	0.034
		15/412	0.036
Echps Eyriesi	globose spinulose	16/412	0.039
		17/412	0.041
		19/412	0.046
		20/412	0.048
		12/270	0.044
		16.5/270	0.042
Lepis mia Mysorum	globose smooth	14/412	0.024
		11/412	0.026
Dis. sororcules Gjormis		14/412	0.034
		15/412	0.036
Echin. mammalosus		15/412	0.036

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412 | 1000 | 0.024
824
1760

412 | 1100
824
2760

412 | 1400 | 0.034
1236
1640

1500 | 0.036
1236
2640

270 | 90 | 0.033
81
90

412 | 1650 | 0.040
2 1648
20

0.039
412 | 1600
1236
3640

0.046
412 | 1900
1648
2520

270 | 100 | 0.037
81

110 | 0.0
188
220

0.044
270 | 1200
1080
120

0.042
270 | 11500
108
20

412 | 800 | 19
4 12
3288
3708

412 | 300 | 22
224
760

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Echinocereus polyacanthus
Arizona

May 31 1871

×285

spindle shaped cells on the surface of old spines giving them a pubescent appearance

×285 ; interior of spine, from longitudinal cut treated with caustic Potash = shows nothing but longitudinal lines

Gray Herbarium Harvard University
2 COLLEGE
CAMBRIDGE

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Leitch & Corlies

CHROMOGRAPHS

South West Corner Fifth and Market Streets

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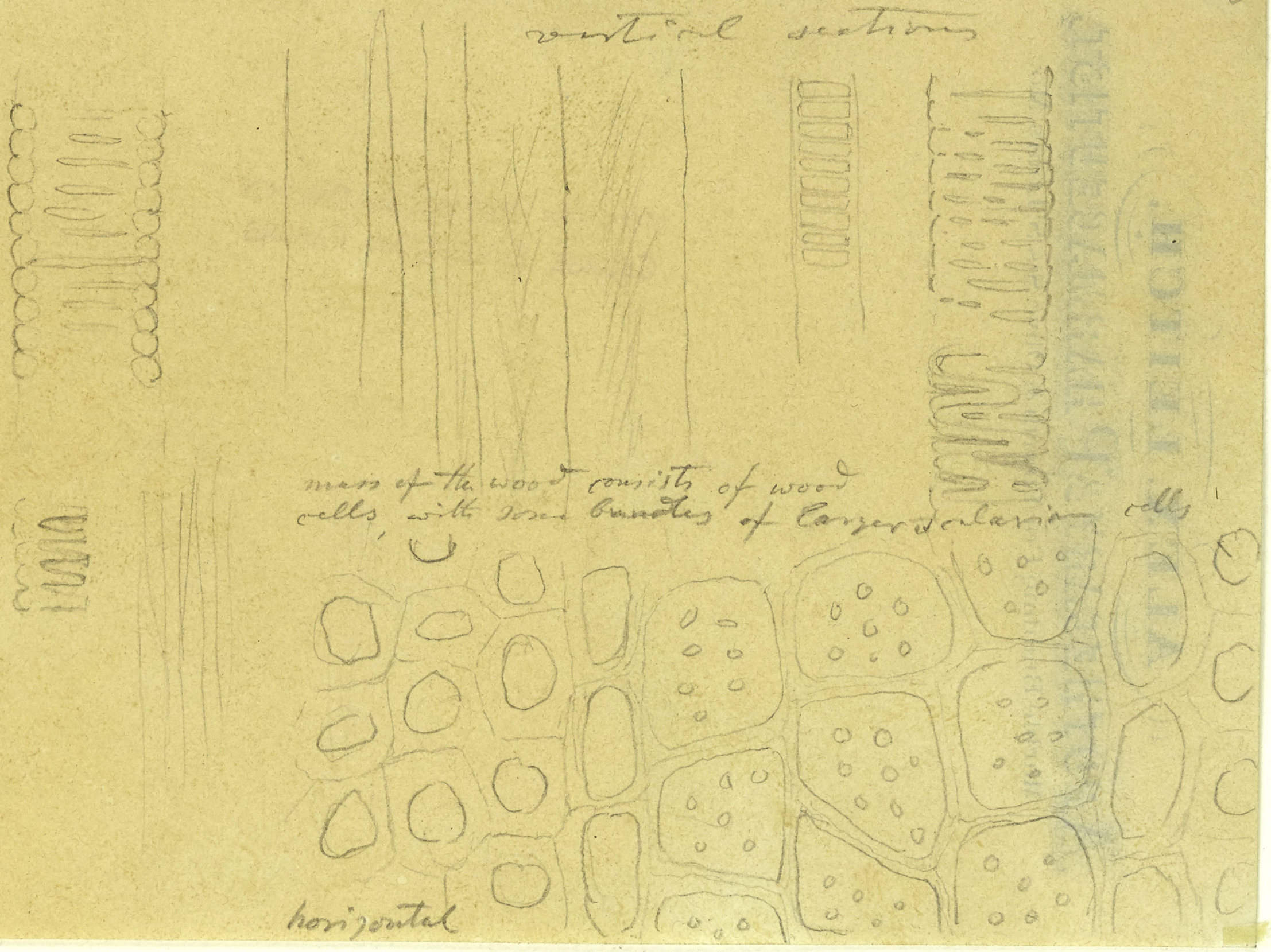
Cerus senilis

Aug 4. 1872

x 285

solid wood for British Museum 1869

vertical section



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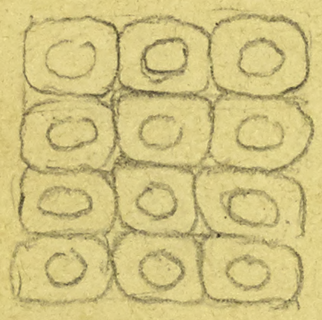
Mam. (Coryph) Arizonica Aug 4 1872

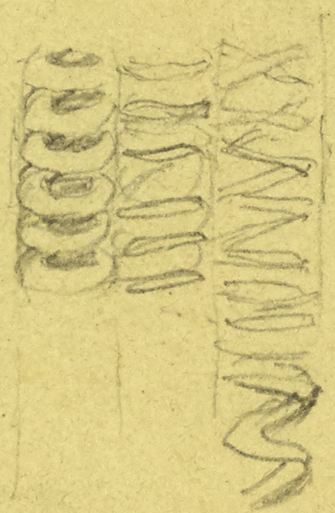
S— Utah, Johnson Jan— 1872

Wedge shaped wood bundles



horizontal section of wood

× 285 bundles in wood cells



vertical section

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Korkmasse in Cuticen (in Essigäther gelöst) Gift
knoten, fadenförmige Zellen zu gesunden oder, ein
ganz gewöhnlicher Prozess in Pflanzenzellen; häufig bei
Kartoffeln ...

Holzmasse besteht aus geschlossenen Zellen
mit dicken Zellwänden in der Größe, wie
diese aufgelöst durch Schwefelsäure Kali & Salpeter
säure, wie sie gebildet werden. Dasselbe
müssten sie für Entfernung der Luft in Alkohol
gekocht werden. Zellen. Lang

Sick - Gefäße und zerstörte Gewebe

.....

Mam. multiceps hat äußerlich Ähnlichkeit
mit Bandwürmer.
ob Bandwürmer entstehen durch
Cuticulen äußerlich Zellen. oder wie mit
Zäpfchen

Bonn. June 1858

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Deutsche Apotheke
von
John G. Schütze & Co.,
Südwestliche Ecke von Broadway und Morgan Straße,
St. Louis, Mo.

Juvenis Plant nov. fam V.

p. 34 says that in

Cucurbitaceae & Cactaceae

the funiculi (and placentae)

assist in forming the flesh of

the fruit; forming semina

in dulcia

fruit of Citrus . Vid p. 23

to 6

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Journ. Plant. Nov. etc. fasc. V

Ann. Sci. Nat. Bot. Ser.

2 Sér. fasc. 1. complet. 1832

fasc. 3 ~~complet~~ 1837

fasc. 4 obs. 2 pl.

fasc. 5 complet. ex vol IV. p. 14. (1845)

Ser. 3 fasc. 2

fasc. 3 tab. I–IV (Cactus)

~~fasc. 4~~ fabulae

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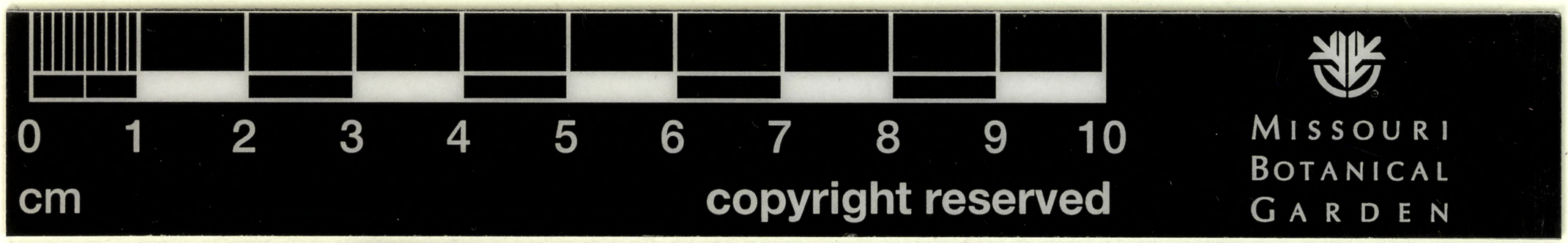

May 24 1871

The investigations in the last few days, of the areolae of Melocactus and Pilocereus (especially P. Curtisii from San Domingo) has again brought up the morphology of the Cactus spines and the nature of aculeiferous and florniferous (or gemmiferous) areolae.

The aculeiferous areola is evidently the vestige, the tip of an axillary bud

The hair (similar to those of Portulaca pilosa etc) clothe the axilla and the spines belong as hair like organs to the bud itself

In many Cactaceae this bud never grows further after the first spines are formed (Mamill. Echinocact, Echinocereus) : definite growth

In others (Cereus, Opuntia Peiresia) the bud often continues (oft for a great many years) a low vegetative existence, enlarging and producing more and more spines (or gemmiferous) ; (indefinite growth)

The florniferous areola is separated from the sterile aculeiferous areola — further in Mamillaria than the latter is raised on the pulvillus (the tubercle) less in Echinocactus, still less in Cereus. —

(In Echinocactus sometimes the glandular organs separate them, in most many Cerei no regular florif areola is formed, but the bud bursts through the epidermis (this especially Echinocactus)

The florniferous areola is united with the aculeiferous one in Opuntia (in which also the adventitious root, springing from this areola or in other words from the bud and also in Melocactus and Pilocereus (on other side

The Question arises whether in these plants this united areola is single one — one bud — and further whether it is not always one single bud torn apart in Echinocactus and more so in Mamillaria.

As the spines always occupy the lower part of such an united single areola, and the flowers not the centre, but always the upper part, it is fair to presume that both areolae are really different, so that

George Engelmann M.D. Dr.

		To Cash from Dr King	5	00
1838		" " " Captn Meyer	5	00
Jan	1	" Cash	35	00
July	2	" "	18	50
1839				
June	30	" "	35	00
1839		" " in 1837	30	00
Jan	1	" " from Theodor Engelmann	15	00
"	"	" " from Mr Schmitz	5	00
"	"	" " from taxes	65	00
1842				
June	25	" " " C. Hatawa Esq	5	00
July	16	" " " Dr Gumpp	15	00
Dec	30	" Semiannual taxes to date	55	00
1843				
Jan	1	" Cash from G Schmitz	10	00
"	"	" charged as per request of Dr Engelmann	61	50
April	25	" Cash from Mr Case	5	00
Oct.	18	" Lands, sold the Dr Botanical garden,		

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morphological organisations, in fact two buds, as both separate or united; the latter lower or outer one producing spikes only, the later, ~~upper~~ or inner one, bringing forth buds (flowers or branches)

see last page

a) This union is regular and constant in Opuntia, where we do not know any other arrangement, or only partial in Melocactus or Pilocereus, where this union takes place only when the plant is going to bloom, and when at the same time ~~either those~~ ~~Her~~ even the spines of the areoles from part are altered (all Melocacti all genera Pilocerei) for some unchanged (Pilocereus Centris) In the first instance the whole part of the parent axis ~~parenchyma~~ that bears these areoles is elongated, in the second, not.

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fig 2

№ 89

This is similar to fig 1 and a young plant from the same pot. The plant is a little more advanced but the secondary one is a great deal smaller

Both adhere together at the base of the stem, probably only with the fibrillae of the top of the root

Angelfeld № 26

also Portulacaria

fig 7

№ 89 Seed of Opuntia Dulcis? sown in Spring 1854 germ in July 1855

I find often in the Opuntiae also two embryos germinating together in the same manner one larger one (mostly with the remains of the seed) and one smaller one, attached to the other at the base of the little stem — never with the seed shell and apparently not organically attached to the first.

Can there be two Embryos to one seed sometimes? —

I have seen it in plants related to O. Engelmanni only such as O. monacantha, O. Ficus & O. Engelmanni itself.

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